Chemistry Laboratory

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Director

Laboratory Services operates as a service for various divisions within the Department of Agriculture and Food. The division laboratories provide chemical, physical, and microbiological analyses. All samples analyzed in the laboratories are collected and forwarded by various field inspection personnel from the Divisions of Plant Industry, Regulatory Service, Animal Health, and Marketing and Conservation Programs.

Feed, fertilizer, meat and meat products, pesticide formulation, and dairy products are tested for specific ingredients as stated by the associated label guarantee. Some products are also examined for the presence of undesirable materials, such as filth, insects, rodent contamination, adulterants, inferior products, and pesticide residues.

The Dairy Microbiology Laboratory is responsible for testing grade "A" raw milk, finished dairy products, and administers a industry laboratory certification. The laboratory is certified by FDA to perform standard plate and coliform counts, microscopic and electric somatic cell determinations, test for antibiotic residues, test for proper pasteurization, and measure fat and water content. The laboratory is also certified as the FDA Central Milk Laboratory for the State of Utah, and our supervisor serves as the State Milk Laboratory Evaluation Officer (LEO) which has jurisdiction over the certified milk labs within the State. Last year there are 23 facilities with 120 analysts under the LEO?s jurisdiction. The LEO is responsible for on-site evaluation and training of all certified analysts throughout the State and along with the dairy laboratory staff, administer a yearly proficiency testing program for all industry analysts.

The Meat Laboratory analyzes meat and meat product samples obtained during inspections of plant and processing facilities that conform to Federal and State standards. Tests are made for fat, moisture, protein, sulfites, and added non-meat products to ensure label compliance of these products. Antibiotic residues and cross-contamination from other species are also monitored. We also analyze samples from Montana Department of Agriculture when requested. Samples (meat and carcass swabs) from processing facilities are also tested for the presence of Salmonella on a monthly basis.

The Pesticide Formulation Laboratory is primarily concerned with testing herbicides, insecticides, and fungicides to ensure that the listing of active ingredients and their concentrations are in compliance with state labeling laws.

The Pesticide Residue Laboratory tests for presence and subsequent levels of herbicide, insecticide, rodenticide, and fungicide residues in plants, fruits, vegetables, soil, water, and milk products. These samples are submitted when inspectors suspect there may be a misuse of the application of the pesticide. Milk samples are tested once a year to for pesticide contamination and maintain compliance with FDA.

Commercial feed (agricultural and pet) samples are tested for moisture, protein, fat, fiber, minerals, toxins, antibiotics, and vitamins in the Feed Laboratory. Seed moisture determinations are also performed for the seed laboratory. The Fertilizer Laboratory tests solid and liquid fertilizer samples for nitrogen, phosphorus, potassium, and trace elements. All feed and fertilizer results are compared to label guarantees to ensure compliance with state labeling laws.

Special Consumer Complaint Samples are also examined for the presence of undesirable materials such as filth, insects, rodent contamination and adulterations. The samples are checked to see if the complaints are valid, and if they are, turn the matter over to departmental Compliance Officers for follow up action.

Ground and Surface Waters are monitored for the presence for pesticides, nitrates, and we also test for 25 elements and other water related parameters. This data is combined with other water data collected in the field to provide a picture on the quality of the state aquifers.

Accomplishments:

As shown in the accompanying table, number of tests declined for some products, which may have been due to budgetary cutbacks. Number of surveys by inspectors has been reduced with a subsequent reduction in number of samples submitted for testing. We continue to provide a monitoring program for food safety, however the coverage is severely reduced.

The dairy laboratory completed their FDA audit with no deviations on procedures, equipment performance, or staff performance. Currently, there are twenty-two (22) facilities with 128 analysts under the LEO?s jurisdiction.

We continue to do all of the analyses on the ground water samples that were previously done at Utah State University with no apparent affects on laboratory production and quality.

No pesticides have been detected in dairy producer samples collected last year and the ground water samples have shown a similar trend.

Meetings with chemists and supervisors from the different divisions continue to be held to discuss status of ongoing programs, problems that are arising, new program needs, and changes due to budget shortfalls.

We continue to work with USU Analytical Laboratory and UDAF Grain Inspection on quality control for hay testing.

The division continues to perform very well on the check sample programs administered for milk, meat, feeds, fertilizers, and pesticide residue and formulation programs.

The following is a breakdown of sample analyses performed in the various programs in the Laboratory Services Division for the years 2000, 2001 and 2002.

	2000	2001	2002
Federal Meat	193	84	423
State Meat	1,247	1,033	1,058
Montana Meat Samples	49	11	122
Dairy Microbiology	18,295	9,787	8,846
Fertilizer	699	714	739
Feed	837	1,335	1,491
Pesticide Formulation	0	23	9
Pesticide Residue	31	18	29
Special Samples	40	22	81
State Groundwater	22,259	31,790	31,029
Pesticide Residue in Milk	1,860	9,553	2,850
Salmonella	257	238	162
TOTAL	45,767	54,608	46,839

In addition to the above analytical work, the staff typically performs anywhere from 5000-7000 determinations on various check samples. The check sample programs are vital and essential for maintaining quality control, quality assurance, and verifying accuracy of results on routine samples. These check samples are also used to help develop new procedures.